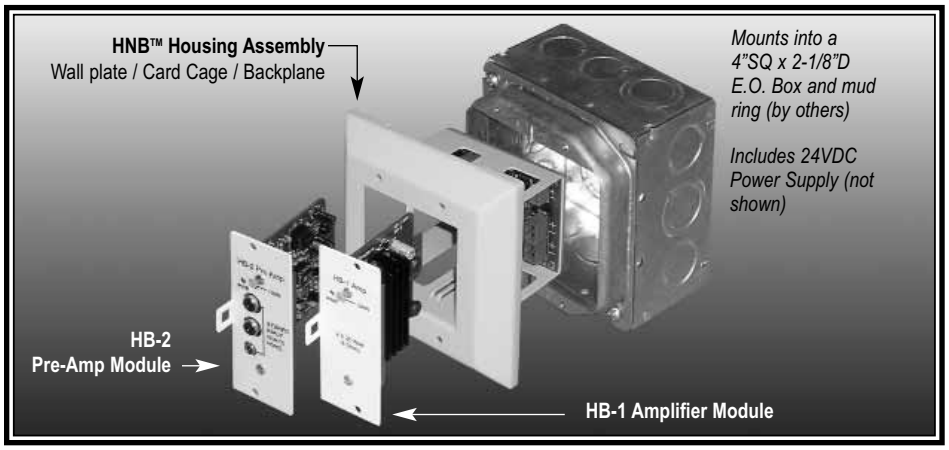
SPECIFICATION SHEET

Modular Mixer/Power Digital Amplifier Series HNB™

HNB™ Digital Amplifier
HNB-225, HNB-225S, HNB-150
HNB-225MO, HNB-225SMO,
HNB-150MO


HNB™ Housing Assembly
Wall plate / Card Cage / Backplane
Mounts into a 4"SQ x 2-1/8"D E.O. Box and mud ring (by others)
Includes 24VDC Power Supply (not shown)
HB-2
Pre-Amp Module
HB-1 Amplifier Module

HNB™ SERIES DIGITAL AMPLIFIER MODELS

HNB-225 ..... **MONO 25W:** Includes HB-1 amp, HB-2 pre-amp, housing assembly*, power supply.
HNB-225MO ..... **MONO 25W with 'Master-Override'**: Same as above with 'Master-Override' interface in backplane.
HNB-225S ..... **STEREO 25W**: Includes HB-1S stereo amp, HB-2S stereo pre-amp, housing assembly*, power supply.
HNB-225SMO ..... **STEREO 25W with 'Master-Override'** - Same as above with 'Master-Override' interface in backplane.
HNB-150 ..... **MONO 50W:** Includes HB-150 mono amp, HB-2 pre-amp, housing assembly*, power supply.
HNB-150MO ..... **MONO 50W with 'Master-Override' :** Same as above with 'Master-Override' interface in backplane.

**Housing assembly includes wall plate / 2-gang card cage / backplane and 24VDC switching power supply.*
*All models can have optional pre-amp card '**FO**' Front Override or 'FOMO' Front Override - MIC Override.*

PERFORMANCE

The Sansonic digital amplifier is a powerful stand-alone audio system with familiar plug-in modules. It is compatible to 4 and 8 ohm speakers and installs into 4" SQ electrical boxes. An integral Decora-style face plate provides attractive wall or ceiling installation close to multimedia equipment. Models with 'Master-Override' (MO) also connect to existing line level (1V Nominal), 25V and 70V intercom, paging and emergency paging systems. The HNB™ Series is suitable for use in AV and 'audio only' applications in Education, Corporate, Retail, Government, Healthcare, Entertainment, Sporting and Church facilities.

HNB™ digital amplifiers are offered in three configurations. All provide the advantages of low cost plus simple installation with reduced set up and labor while providing improved aesthetics and secure placement in already crowded systems and room environments.

Selection includes: mono/25 watt, stereo/25 watt, and mono/50 watt versions. Each is additionally offered with a unique 'Master-Override' (MO) interface compatible with ALL line level (1V nominal), 70V and 25V school intercom, paging and emergency paging systems. The 'Master-Override' circuit on (MO) models ensures that critical system-wide communications, such as hospital code blue or K-12 pages, are instantly routed to all HNB™ connected speakers with simultaneous muting (-50dB) of the AV multimedia signal. This avoids any missed announcements or alarms while enhancing intelligibility and usefulness of the facility's main system. All HNB™ digital amplifiers provide an 'EAO' (Emergency Audio Off) interface terminal for simple connection to fire and alarm systems to ensure HNB™ audio is shut down (-50dB).

Each HNB™ System ships ready to install with a housing assembly that includes a 2-slot card cage with factory installed backplane, an affixed 2-gang Decora-style face plate with two plug-in modules (1 pre-amp and 1 amplifier), and a 24VDC in-line regulated UL Listed switching power supply.

The pre-amp modules (HB-2, HB-2S, HB-2FO and HB-2FOMO) are integrated plug-in cards. One module is used in each assembly. It provides a multiple balanced line input with RCA and 3.5mm minijack connections on the front panel and an associated master gain (screwdriver or finger adjust) which automatically sums to mono on the HB-2. The HB-2S provides stereo input with separate gain controls for the right and left channels. The HB-2FO (Front Override) additionally offers an internal MIC/Line input with front switch selection with bass and treble control. The HB-2FOMO (Front Override/Mic Override) offers an internal MIC/Line input with front MIC level control, bass and treble control, source switch selection and internal MIC automatic mute (0-OFF) of all line sources.

The amplifier modules (HB-1, HB-1S, HB-150) are plug-in cards that provide full-bandwidth (20Hz - 20kHz) to any 4- or 8-ohm speakers. They offer front panel master gain (screwdriver adjust) control and status LED. Selection includes HB-1 mono module with 2 x 25 watt mono output; HB-1S stereo module with 2 x 25 watt stereo output ; and HB-150 mono module with 1 x 50 watt mono output. All HNB™ systems are capable of driving 70V line speakers provided external matching transformers are utilized.

The HNB™ series is compatible to common NEMA/UL electrical boxes, mud rings and conduit for installation within wall and ceiling surfaces from ¼" to 2" thick. It fits within a 4"SQ x 2-1/8"D / 2-gang electrical box, multiple stacked boxes or an LVF 'Class 2' plastic frame.

In-wall and In-ceiling Digital Amplifiers . . .
flexible & affordable . . .
secure & fast installation . . .

Applications

- **MULTI-MEDIA ENVIRONMENTS** supporting AV projectors, laptops, VCR, DVD, DVR, iPOD, MP3 devices requiring enhanced audio coverage in university or K-12 classrooms, conference centers, break-out rooms, board-rooms or training facilities.
- **AUDIO-ONLY INSTALLATIONS** in local or remote areas including stadium skyboxes, concession stands, retail stores or show-rooms, church cry-room or overflow, theater backstage dressing rooms, hospital operating or recovery rooms.

Features

- **SIMPLIFIES INSTALLATION** using modular cards and 4"SQ x 2-1/8"D 2-gang electrical box.
- **REDUCES LABOR & MATERIAL COST** as the HNB™ amp installs along side the multi-media devices - not in a remote location.
- **INNOVATIVE** 'Master-Override' interface is compatible with ALL line level (1V nominal), 70V and 25V school intercom, paging and emergency systems.
- **ENHANCES INTELLIGIBILITY** of school paging / intercom for important announcements and emergency situations by utilizing all HNB™ connected speakers.
- **COMPATIBLE TO ALL MANUFACTURERS** 4-8 ohm high quality speakers.
- **FULL FIDELITY** 20Hz to 20kHz bandwidth.
- **ATTRACTIVE** Decora-style package installs cleanly and quickly into ceilings or walls.
- **RELIABILITY** of automatic over-current and over-temperature protection.
- **QUIET OPERATION** assured when no source is connected or source is turned off with full gain. RF and Audible suppression eliminates noise, hum or buzz in the system.
- **EASE-OF-USE AND ACCESSIBILITY** of multimedia equipment by end users.
- **POWERFUL** 50 watts of digital amplification at 25 watts (into 4 ohms) per channel.
- **ROBUST AND COST EFFECTIVE** integration to emergency PA, fire and alarm systems using 'MO' and "EAO" terminations.

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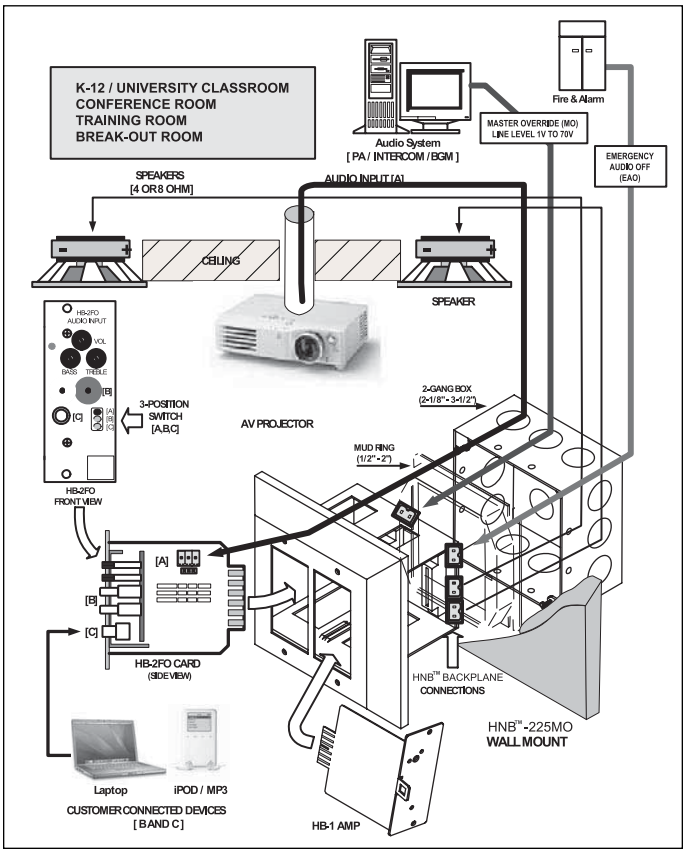
Specifications subject to change

HNB™ SERIES TECHNICAL SPECIFICATIONS

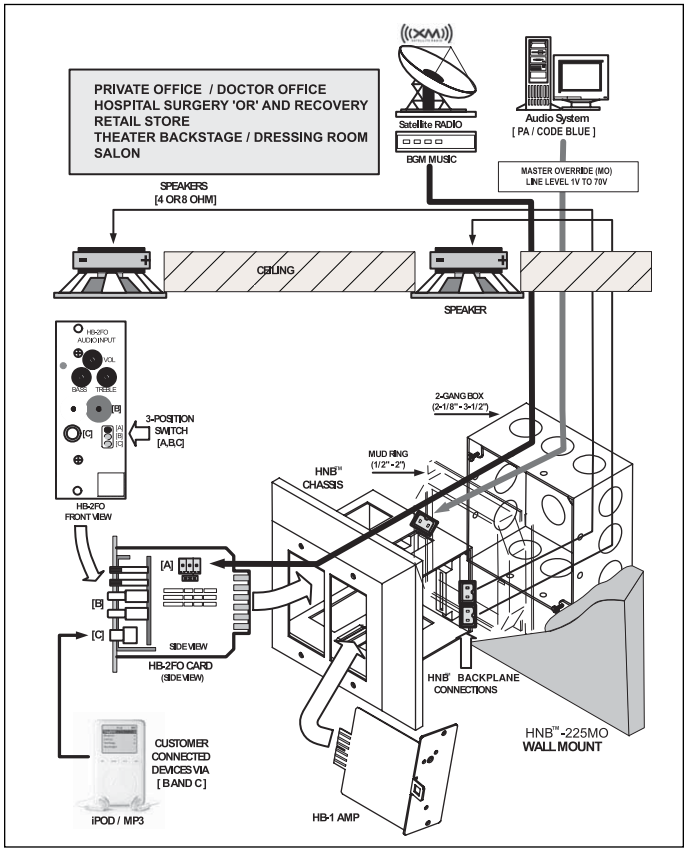
Type	2 Channel Mixer Amplifier in 2-gang Card Cage
Architecture	Digital Class-D
Mains Input Power	100-240VAC, 50-60Hz
Input Power (to HNB™)	24VDC in-line regulated switching supply, 2.5A, FCC, UL, CUL, CE listed (provided)
Output Power (from HNB™)	25W Peak 4Ω per channel mono 12W RMS continuous 8Ω per channel mono
Frequency Response	20Hz - 20kHz (± 1dB)
THD + N (Mono-Ea. CH)	≤ 1.0% at 1kHz rated output ≤ 0.1% at 1kHz at 15.5W 4Ω
Signal to Noise Ratio	100dB A-weighted (band pass: 20Hz-20kHz)
Channel Separation	80dB
Dynamic Range	100dB
Input Sensitivity & Impedance	Program: 250mV, 10kΩ electronically balanced, with RF filter (ferrite)
Outputs (Mono-Ea. CH)	4Ω (optimum) or 8Ω
Output Regulation	Less than 2dB, no load to full load at 1kHz
Gain Controls	HB-1 amplifier: .....Master gain 0-1V HB-1S amplifier: .....R & L gain 0-1V HB-2 pre-amplifier: .....Master gain 0-1V HB-2S pre-amplifier: .....R & L gain 0-1V HB-2FO pre-amplifier:.....R & L gain 0-1V HB-2FOMO pre-amplifier:..R & L gain 0-1V *All 'MO' backplanes sensitivity 1V-70V*

Power Efficiency	<80% at 25W 4Ω, <85% @ 8Ω <90% at 10W 4Ω, <95% @ 8Ω
Power Consumption	32W / 9.5 btu @ 120VAC
Operating Temperature	-40° to +85°C, -40 to 185°F
Storage Temperature	-40° to +150°C, -40 to 302°F
Input connections	RCA, mini-Jack pre-amp (HB-2 Series) 'MO' system override input 2-pin dockable 24VDC Power 2-pin dockable EAO audio off input 2-pin dockable MIC/Line input 2 and 3-pin dockable (FO and FOMO)
Output connections	Speaker 2-pin dockable (x2)
Controls / Indicators	Pre-amp gain (HB-2 Series) w/screwdriver adjust Amplifier master gain (HB-1 Series) w/screwdriver adjust Visual LED (green) for pre-amp and amplifier cards
Material	18 AWG steel / .047 nominal
Finish	Zinc undercoat with white gloss powder paint
Dimensions:	
Face Plate	4.95"W x 4.95"H x 0.75"D
Card Cage	3.42"W x 2.50"H x 3.27"D
Card Modules	1.41"W x 3.55"H x 3.25"D
Weight (Product/shipping)	1.75 lbs. / 2.25 lbs. (all models)

HNB™ DIGITAL AMP SERIES APPLICATIONS

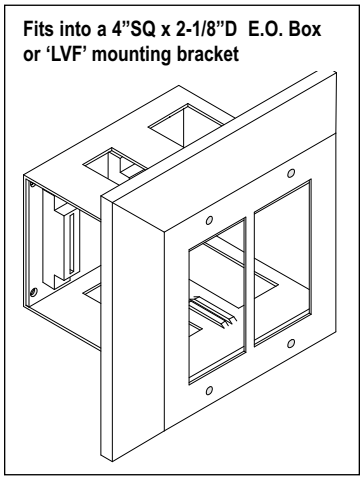


AV MULTIMEDIA / PAGING

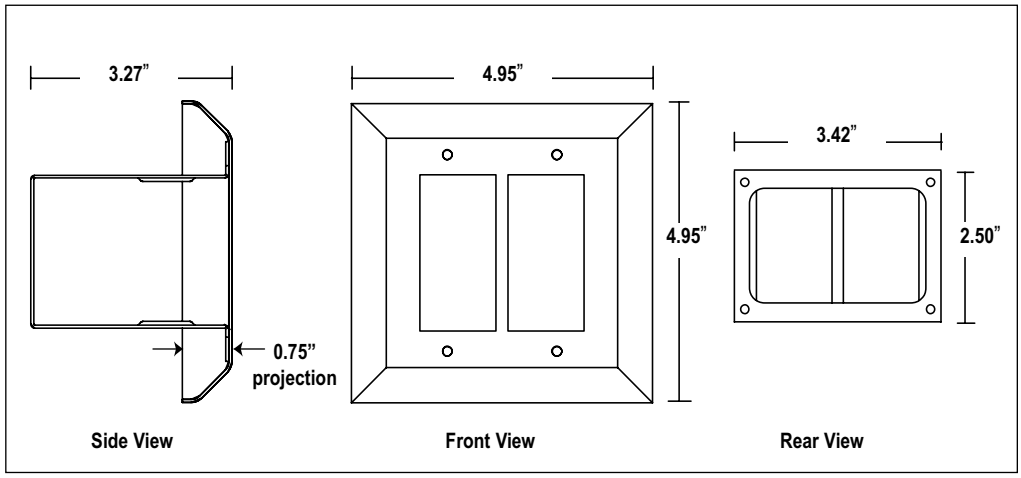


BACKGROUND MUSIC / PAGING

HNB™ SERIES DIMENSIONS

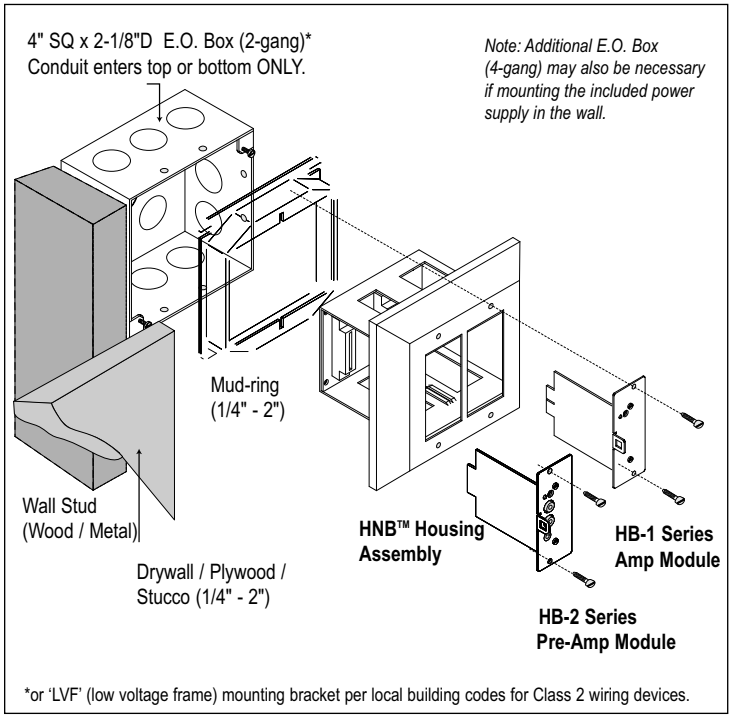


HNB™ Card Cage / Wall Plate Assembly

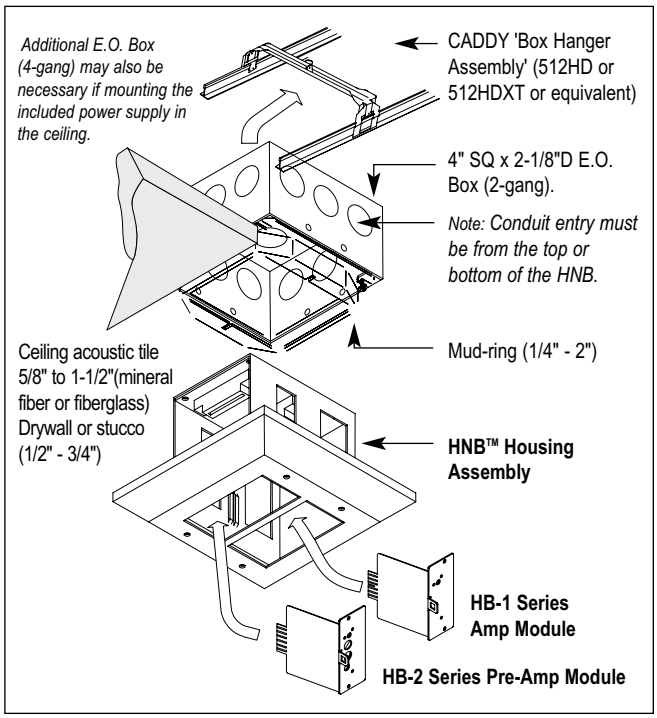


HNB™ Series Dimensions

HNB™ SERIES INSTALLATION


4" SQ x 2-1/8"D E.O. Box (2-gang)*
Conduit enters top or bottom ONLY.
Note: Additional E.O. Box (4-gang) may also be necessary if mounting the included power supply in the wall.
Mud-ring (1/4" - 2")
Wall Stud (Wood / Metal)
Drywall / Plywood / Stucco (1/4" - 2")
HNB™ Housing Assembly
HB-1 Series Amp Module
HB-2 Series Pre-Amp Module
*or 'LVF' (low voltage frame) mounting bracket per local building codes for Class 2 wiring devices.

Wall Installation Overview


Additional E.O. Box (4-gang) may also be necessary if mounting the included power supply in the ceiling.
CADDY 'Box Hanger Assembly' (512HD or 512HDXT or equivalent)
4" SQ x 2-1/8"D E.O. Box (2-gang).
Note: Conduit entry must be from the top or bottom of the HNB.
Mud-ring (1/4" - 2")
Ceiling acoustic tile 5/8" to 1-1/2"(mineral fiber or fiberglass)
Drywall or stucco (1/2" - 3/4")
HNB™ Housing Assembly
HB-1 Series Amp Module
HB-2 Series Pre-Amp Module

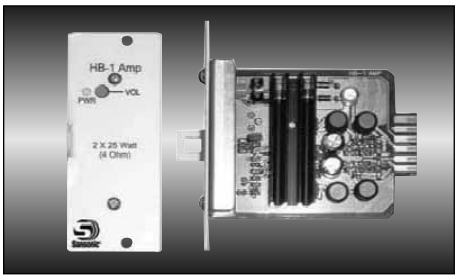
Ceiling Installation Overview

INSTALLATION ACCESSORIES

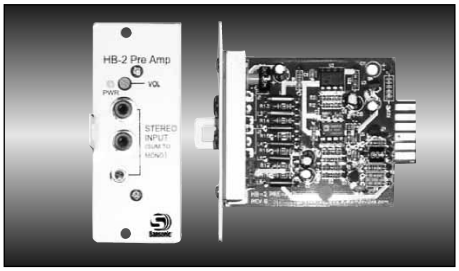
Accessories (by others)

Electrical Box / 2-gang	4" Square x 2-1/8"D [RACO #232 or #239 (plenum) or equivalent], UL / NEMA rated or 'LVF' (low voltage frame) mounting bracket to meet local building codes for Class 2 wiring devices.
Mud Ring	4" Square with 1/4" - 2" extension as needed.
Conduit	EMT, rigid or flex conduit may be required, for ceiling or wall installations, to meet local building codes or authority having jurisdiction (AHJ) requirements. NOTE: CONDUIT MUST ENTER THE BOX FROM THE TOP OR BOTTOM ONLY FOR PROPER FIT.
Speaker Wiring	16-18 AWG 'TWISTED pair' recommended.
Ceiling Support	In-ceiling installation MUST have adequate HNB™ support above the suspended ceiling grid system and needs to follow local building codes and utilize a hanger assembly such as Erico/CADDY UL listed models 512HD or 512HDXT or equivalent.
Electrical Box / 4-gang	Codes may require that the power supply be mounted in a 4-gang standard or plenum E.O. box (RACO #943 or equivalent).

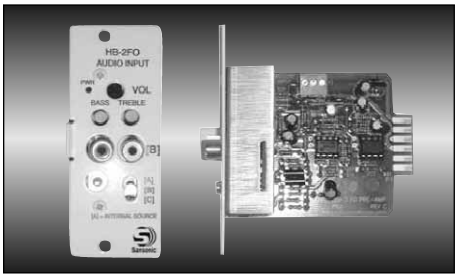
HNB™ SERIES FUNCTIONAL SPECIFICATIONS



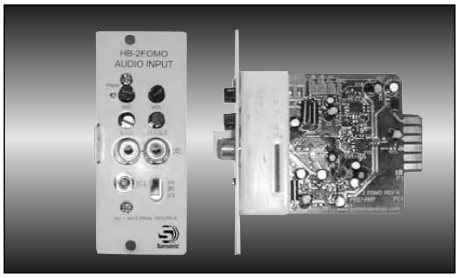
HB-1 / HB-1S / HB-150
Amplifier Modules



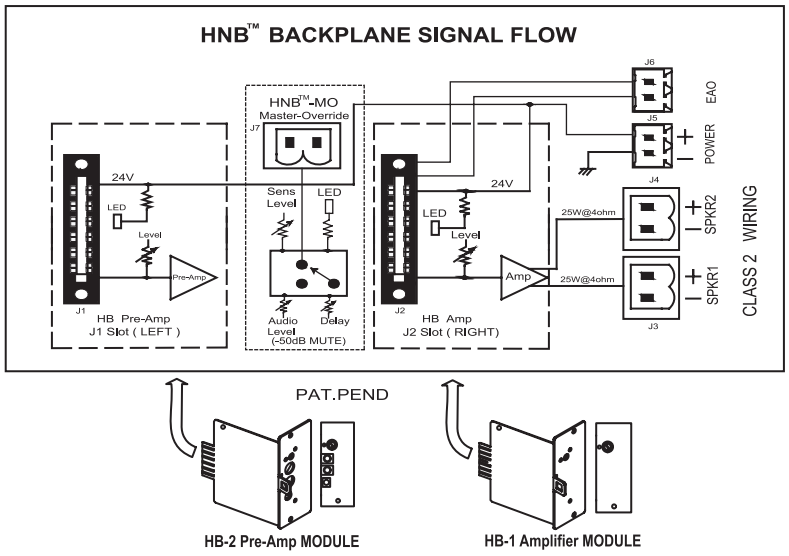
HB-2 / HB-2S
Pre-amp Modules



HB-2FO
Pre-amp Module



HB-2FOMO
Pre-amp Module



HB-3 and HB-3MO Backplanes include:

- Edge card connector interface to amplifier and pre-amp modules.
- Phoenix input / output connectors.
- Individual channel power status LEDs (green).
- Polarized amplifier slot (J2).
- 'Master-Override' input connector (HB-3MO).
- 'Master-Override' sensitivity POT with amber LED indicator (HB-3MO).
- Adjustable 'Master-Override' release time for intercom.
- Adjustable 'Master-Override' audio level input.
- Line level (1V nominal), 25V and 70V compatibility to trigger 'Master-Override'.
- Emergency Audio Off (EAO) input for automatic trigger from fire and alarm panel.

HB-1 Series Amplifier Modules Include:

- Robust digital class-D architecture with better than 85% efficiency.
- Automatic over-current and over-temperature protection.
- Polarized modular 'edge' connector input to HNB™ backplane.
- Power status LED's per channel in HNB™ backplane.
- Visible front panel active status LED.
- Master front panel volume control.
- Power 24VDC from backplane.

HB-1 Details:
- Dual channel 25 watt 4Ω / 12 watt 8Ω output per channel.

HB-1S Details:
- Stereo output 25 watt 4Ω / 12 watt 8Ω output per channel.

HB-150 Details:
- Mono output 50 watt.

HB-2 Series Pre-Amp Modules Include:

- Multiple balanced line inputs. HB-2 has summed mono output; HB-2S offers stereo output.
- Input impedance 10k ohms, electronically balanced.
- AM/FM 'RF' and audible noise suppression.
- RCA and 3.5mm stereo mini-jack inputs.
- Modular 'edge' connector input to HNB™ card cage and backplane.
- Sensitivity at -16dBu.
- Gain per channel -1dB.
- Front panel volume control, screwdriver adjust 10k ohm linear-taper pot.
- Signal to noise (S/N) 85dB.
- Power 24VDC from backplane.
- Visible front panel active status LED.

HB-2FO Series Pre-Amp Module Includes:

- All capabilities of HB-2 pre-amp plus:
  - Front manual switch selection of (3) sources providing customer 'Front Override" (FO) control.
  - Internal MIC/Line level input.
  - Front bass and treble control.

HB-2FOMO Series Pre-Amp Module Includes:

- All capabilities of HB-2 and HB-2FO plus:
  - Front MIC level control.
  - MIC or Line level internal input.
  - Internal MIC Override (MO) with adjustable mute level control of all line input sources (0 to -50db).